

J Herbert Stone Pesticide Use Proposal

The J Herbert Stone Nursery Manager has initiated analysis for ongoing pesticide use at the nursery. The proposed action is to update the list of pesticides approved for use at the nursery and add some design features associated with their use.

Purpose and Need

The purpose of the project is to modify the pesticides available for use at the nursery to maintain an environment suitable for growing a wide variety of affordable restoration plant products for nursery clients. “Pesticides” include herbicides to treat weeds and invasive plants within and adjacent to nursery beds; insecticides to respond to harmful pest outbreaks; fungicides to treat fungal diseases; a fumigant to sterilize soils; and a disinfectant to kill blue-green algae in the water recycling pond.

Pesticides are required to reliably produce high quality container, bareroot, and seed crops at a cost that is affordable to clients. The plant products grown at the nursery are important for affordable restoration of wildlands throughout the northwest.

Pesticide use has been ongoing for decades at the nursery. The time is ripe for analyzing new pesticide use because 1) the needs for pesticide use at the nursery are subject to ongoing change; 2) updated information is available regarding pesticide risk assessment; and 3) lower risk, more cost-effective products are available.

The Proposed Action addresses the following objectives:

- Provide more choices to avoid reliance on a single product or type of product and reduce potential for pesticide resistance
- Address known and potential pests including problem weeds, insects, fungi, soil organisms and algae.
- Provide for worker safety
- Minimize risk to aquatic habitats and organisms
- Minimize use of more mobile and persistent synthetic chemicals

Background

Pesticide use is common in the nursery trade and in the privately-owned agricultural lands surrounding the nursery. Over the years, the nursery has endeavored to minimize impacts from pesticide applications and use the least amount and safest of the effective pesticide products available. JHS has taken the concerns of neighbors, pesticide applicators and other nursery workers into account when preparing pesticide use plans.

An Environmental Impact Statement (EIS) and Record of Decision (ROD) was prepared in 1989 to authorize pesticide use at JHS and other Forest Service nurseries in Oregon and Washington. The 1989 ROD required nursery managers to use integrated pest management approaches that emphasized pest prevention, minimized chemical applications and considered non-chemical practices. The 1989 ROD also required JHS to properly train pesticide applicators and other employees about safe work practices, use personal protective equipment, and communicate hazards to workers and neighbors. Several mitigation measures were recommended to reduce

potential for the pesticides to harm people or the environment. The 1989 ROD outlined a process for a supplemental analysis for adding new chemicals documented by decision memos. Several decision memos were signed between 1990 and 1996 allowing for additional pesticides. Some pesticide use has been authorized using non-documented categorical exclusions.

Design features for pesticide use have evolved over the years; for instance, product labels have changed, triggering changes in application methods and rates. Several pesticides (such as methyl bromide and Simazine) have been discontinued. Increased care has been taken to minimize drift, leaching and runoff, and protect pollinators.

Proposed Action

The proposed action would continue use of some of the registered, effective pesticides authorized in 1989 and subsequent NEPA decisions. Additional pesticide active ingredients would also be authorized. The proposed action would change the ways JHS uses some pesticides and would reduce or eliminate use of pesticides with relatively higher toxicity to aquatic organisms, along with greater mobility and persistence in the environment. Table 1 displays all of the pesticides in use and proposed for use at the nursery. The following products would be new to the nursery and would replace or reduce use of older pesticides: 2,4D (acid), aminopyralid, imazapyr, oryzalin, predimethalin, prodiamine, azadirachtin, Bt israelensis, pyriproxyfen and sodium carbonate peroxyhydrate.

Application Method

The most common application method is broadcast. Typically, this involves a tractor mounted boom that directs spray to specific field rows. Greenhouses are outfitted with booms to allow for broadcast of containerized plants.

Backpack methods involve a person carrying a tank and spraying individual plants. Generally, backpack methods are used for small weed treatments in non-production areas.

Another application method is incorporating fumigant into fields and irrigating. Fields are irrigated for a month prior to application to get the weed seeds active. The dry fumigant is applied to the field surface with a drop spreader, immediately followed by tilling down to 12 inches. Then the tilled area is compacted with a heavy roller to seal the fumigant in. The area is irrigated for 5 days after the application. Soils are kept at field capacity with no run off or puddling. After five days, the fields are allowed to dry and then re-tilled to release any remaining fumigant.

Seed Treatment involves placing the seed in 5-gallon buckets and lightly spraying it with the fungicide. The seed is rolled around in the bucket to get even coverage.

Algaecide treatment occurs in the reservoir. Small spot treatments with hand spreaders from the bank have occurred to date, however the proposed action would also authorize broadcast treatment of the entire reservoir. Algaecide would be applied to the surface of the reservoir using a boat outfitted with a rotary spreader.

Pesticide Application Design Features

The following design features are recommended for pesticide use at the nursery. Ongoing best practices based on the 1989 ROD would remain, and would continue to be refined and adapted to label guidance and nursery conditions. The design features are based on site-specific pesticide risk assessment and previous environmental reviews.

- Minimize overall use of pesticides by implementing integrated pest management methods; continue to utilize mechanical, manual, biological and cultural methods where cost-effective.
- Reduce and minimize use of chemicals that are more mobile and persistent (oxyfluorfen, propiconazole), especially prior to or during the rainy season.
- Reduce and minimize use of pesticides that have been detected with increasing frequency in local aquatic habitats (glyphosate, oxyfluorfen).
- Use chlorpyrifos only in the greenhouses, limited to one application per greenhouse per year. Favor other effective products.
- Manage timing of spraying and irrigation to avoid run off into Jackson Creek.
- Use cover crops and reduce tillage where appropriate.
- Reduce potential for drift by only broadcast spraying when wind speed is between 2 and 8 miles per hour, using the largest feasible nozzle size and lowest spray height, and protecting non-target resources with drift shields. Avoid broadcast within 100 feet of flowering plants when pollinators are present.
- Promptly clean up all spills, including treated seed. (Please note no reportable spills of pesticide have occurred at the nursery.)
- Err on the side of caution when interpreting label guidance.

Table 1. Active Ingredients for Pesticides Proposed For Use at JH Stone Nursery

| Active Ingredient | Product Name ¹ | Pest of Concern | Where (fields, greenhouses, etc) | Average Area Treated / Percent of Nursery Treated Annually | Number of Treatments Per Year | Application Method | Season of Use |
|----------------------------|---------------------------|---------------------|----------------------------------|--|-------------------------------|---------------------|---------------|
| Herbicides | | | | | | | |
| 2,4-D (acid) | 2,4-D Amine | Broadleaf Weeds | Fields | 40 ac./13% | 2 | Broadcast | Spring-Fall |
| Aminopyralid | Milestone | Broadleaf Weeds | Fields, non-production areas, | 5 ac./<2% | 1 | Backpack | Spring-Fall |
| Clpyralid | Stinger | Broadleaf Weeds | Field, non-production areas | 20 ac./6.5% | 1 | Broadcast | Spring-Fall |
| Dicamba | Banvel | Broadleaf Weeds | Fields | 4 ac./1.2% | 1 | Broadcast | Spring-Fall |
| Glyphosate (Aquatic Label) | RoundUp Custom | Post-emergent Weeds | Fields, non-production areas | 30 ac./10% | 2 to 4 | Broadcast /Backpack | Spring-Fall |

¹ Please note that the names of products are subject to change.

| Active Ingredient | Product Name ¹ | Pest of Concern | Where (fields, greenhouses, etc) | Average Area Treated / Percent of Nursery Treated Annually | Number of Treatments Per Year | Application Method | Season of Use |
|-------------------|---------------------------|---------------------------|----------------------------------|--|-------------------------------|--------------------|---------------|
| Imazapic | Plateau | Pre-emergent Weeds | Non-production areas | 2 ac./<1% | 1 | Broadcast | Spring |
| Imazapyr | Arsenal | Yellow Flag Iris | Constructed Wetlands | <1/10th ac. | 1 | Backpack | Fall |
| Oryzalin | Surflan | Pre-emergent Weeds | Fields | 30 ac./10% | 1 to 2 | Broadcast | Spring-Summer |
| Oxyfluorfen | GoalTender | Pre-emergent Weeds | Fields, non-production areas | 30 ac./10% | 2 to 4 | Broadcast | Spring-Fall |
| Pendimethalin | Prowl H2O | Common Agricultural Weeds | Fields | 2.5-10 ac./<5% | 1 to 2 | Broadcast | Summer |
| Prodiamine | Barricade 65WG | Problem Weeds | Fields | 30 ac./10% | 1 | Broadcast | Summer |
| Insecticides | | | | | | | |

| Active Ingredient | Product Name ¹ | Pest of Concern | Where (fields, greenhouses, etc) | Average Area Treated / Percent of Nursery Treated Annually | Number of Treatments Per Year | Application Method | Season of Use |
|-------------------|---------------------------|---------------------------------|----------------------------------|--|-------------------------------|-----------------------|--|
| Azadirachtin | Azatin XL | Fungous gnat, aphids | Fields, Greenhouses, Shadehouse | 5 ac./2% | 2 to 4 | Broadcast | Spring to Fall, except when plants are flowering |
| Bt israelensis | Gnatrol | Greenhouse. | Greenhouses, Shadehouse | NA Greenhouse Only | 2 to 6 | Container Soil Drench | Summer, except when plants are flowering |
| Chlorpyrifos | Lorsban, DuraGuard | Fungous gnat, shore fly, aphids | Greenhouses, Shadehouse | NA greenhouse only | 1 | Broadcast | Summer, except when plants are flowering |
| Esfenvalerate | Asana | Lygus bugs | Fields | 30 ac./10% | 1 to 2 | Broadcast | Summer, except when plants are flowering |

| Active Ingredient | Product Name ¹ | Pest of Concern | Where (fields, greenhouses, etc) | Average Area Treated / Percent of Nursery Treated Annually | Number of Treatments Per Year | Application Method | Season of Use |
|-------------------|---------------------------|--------------------------------|----------------------------------|--|-------------------------------|--------------------|--|
| Pyriproxyfen | Distance | Fungous gnat and Shore fly | Greenhouses, Shadehouse | NA Greenhouse Only | 1 to 4 | Broadcast | Summer, except when plants are flowering |
| Fungicides | | | | | | | |
| Chlorothalonil | Daconil Weatherstik | Leaf Rust, Botrytis | Fields, Shadehouse | 10 ac./5% | 1 to 2 | Broadcast | Summer-Fall |
| Iprodione | ChipCo 26GT | Damping Off Diseases, Botrytis | Fields, Greenhouses, Shadehouse, | 10 ac./3% | 1 | Broadcast | Summer-Fall |
| Mancozeb | Dithane 75DF | Damping Off Diseases | Fields, Greenhouses | 7 ac./2% | 1 to 2 | Broadcast | Summer-Fall |
| Mefenoxam | SubdueMaxx | Water Molds | Fields, Greenhouses | 2 ac./<1% | 2 | Broadcast | Spring-Fall |
| Propiconazole | Tilt | Leaf Rust | Fields | 30 ac./10% | 1 to 2 | Broadcast | Spring-Fall |

| Active Ingredient | Product Name ¹ | Pest of Concern | Where (fields, greenhouses, etc) | Average Area Treated / Percent of Nursery Treated Annually | Number of Treatments Per Year | Application Method | Season of Use |
|--------------------------------|---------------------------|-------------------------------------|----------------------------------|--|------------------------------------|------------------------------------|------------------|
| Thiophanate-methyl | 3336 WP | Damping Off Diseases | Greenhouses, Shadehouse | NA Greenhouse Only | 2 to 5 | Broadcast /Backpack | Spring-Fall |
| Thiram | Thiram 480DP | Seed borne diseases | Brome Seed treatment | NA treated in containers | 1 | Seed dusting | Fall |
| Fumigant | | | | | | | |
| Dazomet | Basamid | Plant Diseases, nematodes and weeds | Presow on all Field Crops | 30 ac./10% | 1 | Incorporate into Soil and Irrigate | Late Summer, Dry |
| Algaecide | | | | | | | |
| Sodium carbonate peroxyhydrate | Green Clean Pro | Blue-green algae | Reservoir | 27.5 ac./ft. of water | One time treatment, not every year | Broadcast over water from boat | Late Summer |